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ABSTRACT

In response to the federal goal to connect all of the nation's school classrooms, libraries, hospitals, and law enforcement agencies to the information superhighway, the U.S. Department of Education commissioned a survey to obtain current data to compare with baseline data (obtained in 1994) on the status of advanced telecommunications in public elementary and secondary schools. Data was gathered in the fall of 1995 from a nationally representative sample of 917 schools regarding the types and location of advanced telecommunications equipment; services currently available; current computer networking capabilities; plans to connect to wide area networks; the formal role groups have in developing telecommunications plans; and barriers that limit acquisition or use of advanced telecommunications. This report contains tabular summaries (16 data tables, 16 standard error tables in Appendix A, and four reference tables in Appendix B) that highlight selected findings based on the data collected. The tables present data for public schools and for schools by instructional level, size of enrollment, metropolitan status, and geographic region of the country. Appendices also include a glossary of terms, the survey methodology and data reliability, the survey instrument, and background information. (AEF)

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Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, 1995

FRSS
Fast Response Survey System

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Advanced Telecommunications in U.S. Public Elementary and Secondary Schools, 1995

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Introduction

The National Information Infrastructure (NII), set forth by the President, encourages an acceleration of the goal to connect all of the nation's school classrooms, as well as libraries, hospitals, and law enforcement agencies, to the "Information Superhighway."

In response to this federal goal, the U.S. Department of Education commissioned a survey to obtain current data to compare with baseline data obtained in 1994 on the status of advanced telecommunications in public elementary and secondary schools. The survey requested information regarding the types of advanced telecommunications equipment and services that are currently available in public schools and the specific locations of the equipment; current computer networking capabilities in public schools; the number of schools that have plans to connect to wide area networks; the formal role groups have in developing telecommunications plans; and the various barriers that limit schools' acquisition or use of advanced telecommunications.

This report contains tabular summaries based on data collected from the *Survey of Advanced Telecommunications in U.S. Public Schools, K-12* conducted in fall 1995 for the National Center for Education Statistics (NCES). The report is presented as an E.D. TAB, that is, as a collection of tables whose sole purpose is to make data or tables available to the general and research public quickly. E.D. TABS are not intended to present analyses of the data from the survey. The tabular summaries present the actual data collected, and only selected findings are highlighted in this report.

The tables in this report present data for public schools overall and for schools by instructional level (elementary, secondary), size of enrollment (less than 300, 300-999, 1,000 or more), metropolitan status (city, urban fringe, town, rural), geographic region of the country (northeast, southeast, central, west), percent minority enrollment (less than 6 percent, 6 to 20 percent, 21 to 49 percent, 50 percent or more), and the percent of students eligible for the federally funded free or reduced-price lunch program (less than 11 percent, 11 to 30 percent, 31 to 70 percent, 71 percent or more). The statistics in all tables are based on national estimates (see table 1). Any statement of comparison made in this report has been tested for statistical significance through chi-square tests or *t*-tests adjusted for multiple comparisons using the Bonferroni adjustment and are significant at the .05 level or better.

The survey was conducted by Westat, Inc., a research firm in Rockville, Maryland, through the NCES Fast Response Survey System (FRSS). FRSS was designed to provide data quickly on policy-related issues regarding emerging educational developments.

The data from this survey provide valuable information that federal agencies will use to measure progress and determine the tasks and activities required to help our nation's public schools move forward in obtaining and using telecommunications technology. An additional report containing detailed analyses of the findings from the survey is forthcoming, as is a report of the findings for a fall 1995 survey of advanced telecommunications in private schools.

Selected Findings

The *Survey of Advanced Telecommunications in U.S. Public Schools, K-12* requested current information regarding the availability and use of telecommunications and, in particular, access to the Internet, plans to obtain Internet access, use of the Internet, and barriers to the acquisition or use of advanced telecommunications. The data were gathered from a nationally representative sample of 917 public elementary and secondary schools in fall 1995. Some comparisons are made with data collected from a similarly nationally representative sample of schools during fall 1994. For definitions, please see Appendix C: Glossary of Terms.

- Fifty percent of U.S. public schools now have access to the Internet (table 3). This percentage is up from 35 percent just 1 year ago.

- Access to the Internet varies by school characteristics (table 4). Only 31 percent of schools with large proportions of students from poor families (71 percent or higher eligibility for free or reduced-price lunches) have access to the Internet, compared to 62 percent of schools with relatively few students from poor families (less than 11 percent eligibility). Access is also related to school enrollment size--from 39 percent for schools with fewer than 300 students to 69 percent for schools with 1,000 or more students. Secondary schools (65 percent) are more likely than elementary schools (46 percent) to be linked to the Internet.

- Seventy-four percent of the schools that do not currently have access to the Internet plan to obtain access in the future (table 13).

- Funding and inadequate telecommunications access points in the building were the most frequently cited barriers to acquiring or using advanced telecommunications in public schools. Fifty-five percent of schools indicated that funds not specifically allocated for telecommunications was a major barrier, and 54 percent indicated too few telecommunications access points in the building as a major barrier (table 14).

- Although half of the nation's public schools already have access to the Internet somewhere in the building and three-fourths of those without access have plans to connect, only 9 percent of all instructional rooms (classrooms, labs, and library media centers) are currently on the Internet (tables 4 and 13). This is a three-fold increase compared with fall 1994, when only 3 percent of all instructional rooms had access to the Internet.

- Public schools report an average of 72 computers including those used for both administrative and instructional purposes (table 5). However, only 14 percent of all computers in public schools across the country have Internet access. Schools with Internet access report an average of 12 computers connected to the Internet (table 7).

- Eighty-five percent of public schools have access to some kind of computer network; 77 percent have computers connected to a local area network and 61 percent have computers with wide area network access (tables 2 and 3).

- In addition to the 50 percent of schools that are on the Internet, 11 percent have access to some other wide area network that does not connect to the Internet, and 23 percent have only a local area network (table 3).

- Public schools now are as likely to have a computer with a modem as they are to have cable television (76 percent for each; table 2). Seventy-one percent have access to broadcast television in their schools. Fewer schools have closed-circuit television (28 percent), one-way video with two-way audio or computer link (13 percent), and two-way video and audio (7 percent).

- In schools with wide area network access, it is generally found in library media centers (68 percent) and to a lesser extent in computer labs (41 percent; table 2). Only 35 percent of public schools with wide area network access report having this capability in a classroom.

- The types of telecommunications most often located in classrooms are broadcast and cable television (71 and 76 percent, respectively; table 2). Although 91 percent of schools with closed-circuit television report having it in the classroom, only 28 percent of schools have this capability.

- Schools indicate that the school district (63 percent) and teachers and other staff (38 percent) are the two groups most likely to play a large formal role in developing the school's telecommunications program (table 12). While only 7 percent indicate that parents play a large role, 31 percent cite parents as playing a moderately active role. This is up from 1994, when only 4 percent of public schools indicated that parents played a large role, with 17 percent reporting they played a moderate role (reference table 12b1).

For the 50 percent of public schools having Internet access in 1995:

- Seven percent of schools on the Internet do not have access in any instructional rooms (including computer labs, library or media centers, and classrooms), 47 percent have 1 instructional room on the Internet, 24 percent have 2-3 rooms, 4 percent report 4 rooms, and 19 percent of schools can connect to the Internet in 5 or more instructional rooms in the school (table 6).

- In fall 1994, 97 percent of schools with wide area networks (49 percent of all schools) could connect to these networks by modem; only 3 to 4 percent used higher speed connections such as T1 (3 percent), 56Kb (4 percent), or SLIP/PPP (3 percent; table 3 and reference table 10b1). By fall 1995, fewer schools with Internet access were relying on modems and the use of faster transmission connections had increased markedly. In fall 1995, 61 percent of schools were connected to wide area networks. Most schools still can connect by modem (81 percent), but 23 percent now report having a SLIP or PPP connection, 10 percent connect by a 56Kb, with 7 percent for T1, and 3 percent for ISDN (table 10).

- Of the schools with Internet access, 93 percent have e-mail, 83 percent can access resource location services, 80 percent have World Wide Web access, and 73 percent can access news groups (table 8). While e-mail is the most widely available Internet service in schools, a higher proportion of schools with other Internet services make these other services available to students. Seventy percent of schools with World Wide Web access make it available to students, 62 percent of schools with resource location services make it available to students, and students can avail themselves of news group

services in 51 percent of the schools with news group access. Only 41 percent of schools with e-mail provide access for students.

- Twenty-eight percent of those schools with Internet access report that teachers use the wide area networks to a moderate or large extent, with 21 percent for students and 18 percent for administrators (table 9).

- High school students are more likely to use wide area networks than elementary students; 30 percent of high schools report a moderate to large extent of wide area network use by students, as compared with 17 percent of elementary schools (table 9).

- Schools manage their networks in a variety of ways. The largest percentage are managed by a part-time administrator (45 percent; table 11). Twenty-four percent indicate that someone from the district staff administers their network and 20 percent report that no single individual is responsible. Only 12 percent of schools report that their network is administered by a full-time administrator.

Table 1.--Number and percent of responding public schools in the study sample and estimated number and percent of public schools the sample represents, by school characteristics: 1995

School characteristic	Respondent sample		National estimate	
	Number	Percent	Number	Percent
All public schools	917	100	77,853	100
Instructional level				
Elementary	455	50	57,705	74
Secondary	421	46	18,083	23
Combined	41	5	2,064	3
Size of enrollment				
Less than 300	181	20	20,673	27
300 to 999	537	59	50,044	64
1,000 or more	199	22	7,136	9
Metropolitan status				
City	208	23	17,906	23
Urban fringe	230	25	18,464	24
Town	237	26	19,539	25
Rural	242	26	21,944	28
Geographic region				
Northeast	162	18	13,935	18
Southeast	206	23	16,568	21
Central	269	29	23,980	31
West	280	31	23,369	30
Percent minority enrollment				
Less than 6 percent	266	31	23,750	32
6 to 20 percent	219	25	18,036	24
21 to 49 percent	192	22	15,698	21
50 percent or more	194	22	16,390	22
Percent of students eligible for free or reduced-price school lunch				
Less than 11 percent	176	19	13,192	17
11 to 30 percent	284	31	21,876	28
31 to 70 percent	311	34	28,017	36
71 percent or more	143	16	14,651	19

NOTE: Percents may not sum to 100 because of rounding, and details may not add to totals because of rounding for weighted estimates.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Table 2.--Percent of public schools having access to selected telecommunications capabilities and the specific location of telecommunications within the school, by capability: 1995

Telecommunications capabilities	Percent of schools having access	Percent of schools reporting their telecommunications locations				
		Administrative offices	Teacher workrooms	Class-rooms	Computer labs	Library/ media centers
Computers connected to a local area network	77	73	20	45	71	64
Computer with modem	76	61	10	30	41	64
Computer with connection or access to a wide area network	61	58	14	35	41	68
Broadcast television	71	35	28	82	47	88
Cable television	76	33	25	72	42	91
Closed-circuit television	28	50	32	91	60	89
One-way video with two-way audio or computer link	13	24	17	57	37	69
Two-way video and audio	7	26	15	63	41	54

NOTE: Percents of schools reporting telecommunications locations do not sum to 100 because many schools reported access in more than one location. Location estimates are based on those schools that have access to the individual type of telecommunications capability.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Table 3.--Percent of public schools having access to various types of computer networks in fall 1994 and fall 1995

Type of computer network	Percent of schools having access to computer networks	
	1994	1995
Any type of computer network (i.e., local area network or wide area network)	75	85
Local area network only	26	23
Wide area network	49	61
Internet	35	50
Other wide area network with no access to Internet	14	11

NOTE: Details may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995; "Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 51, NCES 95-731.

Table 4.--Percent of public schools having access to the Internet and the percent of all instructional rooms across the country with Internet access in fall 1994 and fall 1995, by school characteristics

School characteristic	Percent of schools having access to the Internet		Percent of all instructional rooms across the country with Internet access[1]	
	1994	1995	1994	1995
All public schools	35	50	3	9
Instructional level[2]				
Elementary	30	46	3	10
Secondary	49	65	4	8
Size of enrollment				
Less than 300	30	39	3	11
300 to 999	35	52	3	10
1,000 or more	58	69	3	4
Metropolitan status				
City	40	47	4	8
Urban fringe	38	59	4	8
Town	29	47	3	10
Rural	35	48	3	10
Geographic region				
Northeast	34	59	3	7
Southeast	29	44	2	6
Central	34	52	3	11
West	42	48	5	10
Percent minority enrollment				
Less than 6 percent	+	52	+	10
6 to 20 percent	+	58	+	11
21 to 49 percent	+	54	+	10
50 percent or more	+	40	+	5
Percent of students eligible for free or reduced-price lunch				
Less than 11 percent	•	62	•	9
11 to 30 percent	•	59	•	10
31 to 70 percent	•	47	•	8
71 percent or more	•	31	•	5

•Data not available.
+Data for 1994 not published.

[1]The percent of instructional rooms across the country is based upon the total number of instructional rooms (e.g., classrooms, computer labs, library/media centers) in all regular public elementary and secondary schools.

[2]Data for combined schools are not reported as a separate instructional level because there were very few in the sample. Data for combined schools are included in the totals and in analyses by other school characteristics.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995; "Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 51, NCES 95-731.

Table 5.--Mean number of computers in public schools and the percent of all computers in public schools across the country with Internet access, by school characteristics: 1995

School characteristic	Mean number of all computers in public schools[1]	Percent of all computers in public schools across the country with Internet access[2]
All public schools	72	14
Instructional level[3]		
Elementary	60	13
Secondary	112	13
Size of enrollment		
Less than 300	41	15
300 to 999	71	15
1,000 or more	164	8
Metropolitan status		
City	84	11
Urban fringe	83	13
Town	72	16
Rural	54	14
Geographic region		
Northeast	63	15
Southeast	87	10
Central	62	15
West	77	13
Percent minority enrollment		
Less than 6 percent	60	17
6 to 20 percent	75	15
21 to 49 percent	77	14
50 percent or more	80	8
Percent of students eligible for free or reduced-price lunch		
Less than 11 percent	77	15
11 to 30 percent	78	15
31 to 70 percent	68	12
71 percent or more	65	10

[1]The mean number of computers is based upon the total number of computers reported by schools, including those used for administrative purposes.

[2]The percent of computers across the country is based upon the total number of computers in all regular public elementary and secondary schools.

[3]Data for combined schools are not reported as a separate instructional level because there were very few in the sample. Data for combined schools are included in the totals and in analyses by other school characteristics.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995; "Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 51, NCES 95-731.

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Table 6.--Percent of public schools having access to the Internet by the number of instructional rooms with Internet access, by school characteristics: 1995

School characteristic	Number of instructional rooms with Internet access				
	0 rooms	1 room	2-3 rooms	4 rooms	5 or more rooms
All public schools	7	47	24	4	19
Instructional level*					
Elementary	7	51	20	4	19
Secondary	6	39	33	5	17
Size of enrollment					
Less than 300	10	42	28	4	17
300 to 999	6	50	22	4	19
1,000 or more	5	40	30	5	20
Metropolitan status					
City	7	42	22	6	23
Urban fringe	6	50	24	2	19
Town	8	47	21	4	20
Rural	7	47	28	5	13
Geographic region					
Northeast	3	54	25	1	17
Southeast	2	58	22	6	12
Central	10	41	24	3	22
West	9	41	24	6	20
Percent minority enrollment					
Less than 6 percent	12	43	25	3	18
6 to 20 percent	5	44	20	5	25
21 to 49 percent	2	48	24	6	20
50 percent or more	7	51	30	1	11
Percent of students eligible for free or reduced-price lunch					
Less than 11 percent	3	46	22	4	25
11 to 30 percent	5	45	24	4	22
31 to 70 percent	9	46	24	6	14
71 percent or more	9	56	25	1	8

*Data for combined schools are not reported as a separate instructional level because there were very few in the sample. Data for combined schools are included in the totals and in analyses by other school characteristics.

NOTE: Percents in this table are based upon the number of schools having access to the Internet--50 percent of public schools. Percents may not sum to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Table 7.--Percent of public schools having access to the Internet by the number and mean number of computers with Internet access, by school characteristics: 1995

School characteristic	Number of computers with Internet access				Mean number of computers with Internet access
	1 computer	2-5 computers	6-9 computers	10 or more computers	
All public schools	35	38	6	21	12
Instructional level*					
Elementary	40	37	5	18	9
Secondary	25	39	9	27	16
Size of enrollment					
Less than 300	34	42	8	16	7
300 to 999	38	35	6	21	12
1,000 or more	19	45	5	31	15
Metropolitan status					
City	29	39	6	26	11
Urban fringe	38	34	6	22	12
Town	36	35	6	22	14
Rural	36	42	6	16	9
Geographic region					
Northeast	48	29	7	17	11
Southeast	32	49	3	16	10
Central	36	35	6	23	11
West	27	40	8	26	12
Percent minority enrollment					
Less than 6 percent	45	29	6	20	12
6 to 20 percent	25	42	7	26	13
21 to 49 percent	32	40	5	23	13
50 percent or more	32	44	8	16	8
Percent of students eligible for free or reduced-price lunch					
Less than 11 percent	29	38	6	26	14
11 to 30 percent	35	33	7	25	13
31 to 70 percent	40	40	5	15	9
71 percent or more	32	43	4	21	9

*Data for combined schools are not reported as a separate instructional level because there were very few in the sample. Data for combined schools are included in the totals and in analyses by other school characteristics.

NOTE: Percents in this table are based upon the number of schools having access to the Internet--50 percent of public schools. Percents may not sum to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Table 8.--Percent of public schools having access to the Internet, by various types of Internet capabilities and for whom in the school community the capability is available: 1995

Internet capabilities	Available[1]	Members of school community with access to capability[2]		
		Administrative staff	Teachers	Students
E-mail	93	91	85	41
News groups	73	82	92	51
Resource location services (e.g., Gopher, Archie, Veronica, etc.)	83	83	92	62
World Wide Web Access (e.g., Browsers, such as Netscape, MOSAIC)	80	82	92	70

[1]Percents in this column are based upon the number of schools having access to the Internet--50 percent of public schools.

[2]Percents in these columns are based upon the number of schools with the corresponding Internet capability.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Table 9.--Percent of public schools having access to the Internet, by the extent of wide area network use by members of the school community and by school characteristics: 1995

School characteristic	Members of the school community								
	Administrative staff			Teachers			Students		
	Not at all	Small extent	Moderate or large extent	Not at all	Small extent	Moderate or large extent	Not at all	Small extent	Moderate or large extent
All public schools	27	55	18	11	61	28	32	47	21
Instructional level*									
Elementary	29	55	16	13	64	23	35	48	17
Secondary	23	56	21	8	54	38	27	42	30
Size of enrollment									
Less than 300	21	57	22	17	51	32	35	46	18
300 to 999	28	55	17	10	64	26	32	47	21
1,000 or more	30	54	15	8	60	32	24	48	28
Metropolitan status									
City	28	56	15	11	64	24	29	54	23
Urban fringe	31	52	17	9	63	28	26	51	21
Town	28	56	16	12	61	27	37	42	23
Rural	20	57	23	13	55	32	37	41	21
Geographic region									
Northeast	33	54	13	11	67	22	35	44	21
Southeast	36	56	8	12	67	21	33	50	17
Central	26	54	20	14	60	27	27	51	22
West	18	57	26	8	54	38	34	42	24
Percent minority enrollment									
Less than 6 percent	26	54	20	21	53	26	36	45	19
6 to 20 percent	24	54	22	5	62	33	25	50	25
21 to 49 percent	31	56	13	4	74	22	31	46	23
50 percent or more	26	60	14	12	57	31	36	49	16
Percent of students eligible for free or reduced-price lunch									
Less than 11 percent	25	57	18	10	57	33	24	47	30
11 to 30 percent	25	50	24	8	63	29	27	49	24
31 to 70 percent	30	59	11	16	60	24	41	45	14
71 percent or more	26	56	18	10	62	28	33	48	19

*Data for combined schools are not reported as a separate instructional level because there were very few in the sample. Data for combined schools are included in the totals and in analyses by other school characteristics.

NOTE: Percents in this table are based upon the number of schools having access to the Internet--50 percent of public schools. Percents may not sum to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Table 10.--Percent of public schools having access to the Internet, by type of wide area network connection and by school characteristics: 1995

School characteristic	Type of network connection				
	Modem	SLIP/PPP	56Kb	T1	ISDN
All public schools	81	23	10	7	3
Instructional level*					
Elementary	82	21	9	6	2
Secondary	77	28	13	8	3
Size of enrollment					
Less than 300	85	18	9	1	4
300 to 999	81	23	11	7	2
1,000 or more	76	30	10	12	3
Metropolitan status					
City	83	20	9	10	5
Urban fringe	80	23	9	7	2
Town	82	24	13	6	0
Rural	80	23	10	5	4
Geographic region					
Northeast	87	22	11	5	2
Southeast	86	16	6	8	6
Central	78	32	10	7	1
West	76	17	14	7	3
Percent minority enrollment					
Less than 6 percent	75	28	14	5	3
6 to 20 percent	80	21	9	8	1
21 to 49 percent	90	21	8	7	4
50 percent or more	82	15	7	7	4
Percent of students eligible for free or reduced-price lunch					
Less than 11 percent	75	27	18	6	(--)
11 to 30 percent	75	29	10	9	1
31 to 70 percent	90	16	7	4	3
71 percent or more	80	16	7	9	10

(--) Less than 0.5 percent.

*Data for combined schools are not reported as a separate instructional level because there were very few in the sample. Data for combined schools are included in the totals and in analyses by other school characteristics.

NOTE: Percents in this table are based upon the number of schools having access to the Internet--50 percent of public schools. Percents do not sum to 100 because some schools reported more than one type of connection.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Table 11.--Percent of public schools having access to the Internet, by type of network administrator and by school characteristics: 1995

School characteristic	Type of network administrator			
	Full-time network administrator	Part-time network administrator	No single individual	District staff
All public schools	12	45	20	24
Instructional level*				
Elementary	11	41	22	26
Secondary	13	52	16	19
Size of enrollment				
Less than 300	11	51	16	21
300 to 999	13	43	20	24
1,000 or more	11	43	22	24
Metropolitan status				
City	7	42	24	27
Urban fringe	9	43	19	28
Town	23	41	14	22
Rural	9	52	22	17
Geographic region				
Northeast	13	46	23	18
Southeast	10	38	25	27
Central	13	47	17	23
West	11	45	17	27
Percent minority enrollment				
Less than 6 percent	15	46	24	15
6 to 20 percent	14	41	18	27
21 to 49 percent	8	42	19	32
50 percent or more	6	53	20	21
Percent of students eligible for free or reduced-price lunch				
Less than 11 percent	11	40	23	26
11 to 30 percent	18	43	18	21
31 to 70 percent	9	49	17	24
71 percent or more	5	45	25	25

*Data for combined schools are not reported as a separate instructional level because there were very few in the sample. Data for combined schools are included in the totals and in analyses by other school characteristics.

NOTE: Percents in this table are based upon the number of schools having access to the Internet--50 percent of public schools. Percents may not sum to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

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Table 12.--Percent of public schools reporting the extent of the formal role that various groups have in developing the school's advanced telecommunications activities: 1995

Various groups	Small or no extent	Moderate extent	Large extent
Students	86	13	2
Teachers/staff	25	37	38
Parents	63	31	7
School district	13	24	63
State education agency	67	19	14
Regional associations	81	13	6
Business leaders	82	14	4
Institutions of higher education	82	13	5
Other community organizations	86	10	3

NOTE: Percents may not sum to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Table 13.--Percent of public schools that do not currently have access to the Internet and their plans to obtain access to the Internet, by school characteristics: 1995

School characteristics	No current Internet access	Planning Internet access in future	Type of access planned			No plans for future Internet access
			Direct	Other WAN	Both	
All public schools	50	74	43	20	11	26
Instructional level*						
Elementary	54	72	44	20	9	28
Secondary	35	80	40	23	17	20
Size of enrollment						
Less than 300	61	66	36	18	13	34
300 to 999	48	76	44	22	9	24
1,000 or more	31	91	68	15	9	9
Metropolitan status						
City	53	74	41	18	16	26
Urban fringe	41	71	42	21	8	29
Town	51	71	39	25	8	29
Rural	52	78	49	19	10	22
Geographic region						
Northeast	41	64	41	15	9	36
Southeast	56	77	43	25	9	23
Central	48	69	39	21	8	31
West	52	80	47	19	15	20
Percent minority enrollment						
Less than 6 percent	48	74	41	20	13	26
6 to 20 percent	42	72	55	12	5	27
21 to 49 percent	46	77	38	23	16	23
50 percent or more	60	68	40	20	8	32
Percent of students eligible for free or reduced-price lunches						
Less than 11 percent	38	68	51	10	7	32
11 to 30 percent	41	78	41	22	15	22
31 to 70 percent	53	72	40	21	11	28
71 percent or more	69	75	44	23	7	25

*Data for combined schools are not reported as a separate instructional level because there are very few in the sample. Data for combined schools are included in the totals and in analyses by other school characteristics.

NOTE: Details may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Table 14.--Percent of all public schools indicating the extent to which various factors are barriers to either the acquisition or the use of advanced telecommunications: 1995

Barrier	Minor or no barrier	Moderate barrier	Major barrier
Lack of or poor equipment	37	23	40
Inadequate hardware upkeep and repair	55	22	24
Too few telecommunication access points in building	29	18	54
Problems with telecommunications service provider	74	13	13
Lack of instructional software	52	28	20
Software too complicated to use	79	15	6
Lack of time in school schedule	44	26	30
Telecommunications links not easily accessible	45	19	36
Telecommunications equipment not easily accessible	40	22	37
Lack of technical support or advice	48	27	25
Lack of administrative support or initiative	74	15	11
Lack of or inadequately trained staff	39	33	29
Lack of teacher interest	70	24	5
Lack of teacher awareness regarding ways to integrate telecommunications into curriculum	36	36	28
Lack of student interest	95	4	1
Lack of parent or community interest	81	15	5
Not enough help for supervising student computer use	49	28	23
Concern about student access to inappropriate materials	58	24	18
Funds not specifically allocated for telecommunications	28	18	55
Variability of telecommunications rates from service providers	63	21	16
Use of advanced telecommunications does not fit with the educational policy of this school	93	6	1

NOTE: Percents may not sum to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Table 15.--Percent of public schools currently having access to the Internet by the extent to which various factors are barriers to upgrading or maximizing the use of their advanced telecommunications capabilities: 1995

Barrier	Minor or no barrier	Moderate barrier	Major barrier
Lack of or poor equipment	39	23	38
Inadequate hardware upkeep and repair	60	20	20
Too few telecommunication access points in building	31	18	51
Problems with telecommunications service provider	79	12	9
Lack of instructional software	59	27	14
Software too complicated to use	83	13	4
Lack of time in school schedule	37	26	37
Telecommunications links not easily accessible	48	23	29
Telecommunications equipment not easily accessible	45	25	31
Lack of technical support or advice	49	29	22
Lack of administrative support or initiative	76	16	8
Lack of or inadequately trained staff	37	35	28
Lack of teacher interest	69	25	5
Lack of teacher awareness regarding ways to integrate telecommunications into curriculum	33	37	30
Lack of student interest	95	4	1
Lack of parent or community interest	83	12	4
Not enough help for supervising student computer use	45	31	23
Concern about student access to inappropriate materials	55	26	19
Funds not specifically allocated for telecommunications	33	18	49
Variability of telecommunications rates from service providers	68	18	14
Use of advanced telecommunications does not fit with the educational policy of this school	96	4	(–)

(–) Less than 0.5 percent.

NOTE: Percents in this table are based upon the number of schools having access to the Internet—50 percent of public schools. Percents may not sum to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Table 16.--Percent of public schools that do not currently have access to the Internet by the extent to which various factors are barriers to their acquisition of advanced telecommunications capabilities: 1995

Barrier	Minor or no barrier	Moderate barrier	Major barrier
Lack of or poor equipment	35	23	42
Inadequate hardware upkeep and repair	49	23	28
Too few telecommunication access points in building	27	17	56
Problems with telecommunications service provider	68	14	17
Lack of instructional software	45	30	26
Software too complicated to use	76	17	7
Lack of time in school schedule	51	25	24
Telecommunications links not easily accessible	42	15	43
Telecommunications equipment not easily accessible	36	19	44
Lack of technical support or advice	47	26	27
Lack of administrative support or initiative	72	15	13
Lack of or inadequately trained staff	40	30	30
Lack of teacher interest	72	23	5
Lack of teacher awareness regarding ways to integrate telecommunications into curriculum	39	36	26
Lack of student interest	95	3	2
Lack of parent or community interest	78	17	5
Not enough help for supervising student computer use	53	25	22
Concern about student access to inappropriate materials	61	22	18
Funds not specifically allocated for telecommunications	22	17	60
Variability of telecommunications rates from service providers	59	24	18
Use of advanced telecommunications does not fit with the educational policy of this school	90	8	2

NOTE: Percents in this table are based upon the number of schools that do not have access to the Internet--50 percent of public schools. Percents may not sum to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey of Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Appendix A

Standard Error Tables

Table 2a.--Standard errors of the percent of public schools having access to selected telecommunications capabilities and the specific location of telecommunications within the school, by capability: 1995

Telecommunications capabilities	Percent of schools having access	Percent of schools reporting their telecommunications locations				
		Administrative offices	Teacher workrooms	Class-rooms	Computer labs	Library/ media centers
Computers connected to a local area network	1.8	1.7	1.5	2.2	1.9	2.0
Computer with modem	1.7	1.9	1.1	1.8	1.6	2.1
Computer with connection or access to a wide area network	2.0	2.3	1.3	2.3	2.5	2.2
Broadcast television	1.4	2.4	2.2	1.5	2.1	1.4
Cable television	1.7	1.7	1.8	1.6	2.1	1.2
Closed-circuit television	1.7	3.3	2.9	1.7	3.1	2.0
One-way video with two-way audio or computer link	1.2	4.1	3.7	4.6	4.6	4.6
Two-way video and audio	0.8	5.6	4.5	5.8	6.1	5.5

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Table 3a.--Standard errors of the percent of public schools having access to various types of computer networks in fall 1994 and fall 1995

Type of computer network	Percent of schools having access to computer networks	
	1994	1995
Any type of computer network (i.e., local area network or wide area network)	1.5	1.4
Local area network only	1.5	1.6
Wide area network	1.5	2.0
Internet	1.5	1.8
Other wide area network with no access to Internet	1.0	1.3

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995; "Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 51, NCES 95-731.

Table 4a.--Standard errors of the percent of public schools having access to the Internet and the percent of all instructional rooms across the country with Internet access in fall 1994 and fall 1995, by school characteristics

School characteristic	Percent of schools having access to the Internet		Percent of all instructional rooms across the country with Internet access	
	1994	1995	1994	1995
All public schools	1.5	1.8	0.3	0.9
Instructional level				
Elementary	1.9	2.4	0.4	1.3
Secondary	2.4	2.7	0.6	1.1
Size of enrollment				
Less than 300	3.4	3.9	0.7	2.4
300 to 999	2.0	2.2	0.5	1.3
1,000 or more	3.0	4.1	0.6	1.0
Metropolitan status				
City	3.1	4.3	0.8	1.7
Urban fringe	2.9	3.8	0.8	1.4
Town	2.3	3.7	0.6	2.6
Rural	2.7	3.8	0.4	1.8
Geographic region				
Northeast	3.1	5.3	0.7	1.5
Southeast	3.1	3.3	0.3	1.9
Central	2.8	3.3	0.8	1.5
West	2.6	3.4	0.8	1.6
Percent minority enrollment				
Less than 6 percent	+	3.3	+	1.8
6 to 20 percent	+	4.4	+	1.7
21 to 49 percent	+	4.0	+	2.3
50 percent or more	+	3.8	+	1.2
Percent of students eligible for free or reduced-price lunch				
Less than 11 percent	•	3.5	•	1.6
11 to 30 percent	•	3.6	•	1.7
31 to 70 percent	•	2.9	•	1.5
71 percent or more	•	4.3	•	1.6

•Data not available.

+Data for 1994 not published.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995; "Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 51, NCES 95-731.

Table 5a.--Standard errors of the mean number of computers in public schools and the percent of all computers in public schools across the country with Internet access, by school characteristics: 1995

School characteristic	Mean number of all computers in public schools	Percent of all computers in public schools across the country with Internet access
All public schools	1.7	1.4
Instructional level		
Elementary	2.0	1.7
Secondary	3.4	1.6
Size of enrollment		
Less than 300	2.6	3.2
300 to 999	2.0	1.7
1,000 or more	6.5	1.1
Metropolitan status		
City	3.5	1.6
Urban fringe	3.5	2.0
Town	3.3	3.2
Rural	2.2	2.9
Geographic region		
Northeast	3.5	3.2
Southeast	4.0	2.3
Central	2.7	2.0
West	2.8	1.7
Percent minority enrollment		
Less than 6 percent	2.7	2.5
6 to 20 percent	3.5	2.0
21 to 49 percent	4.1	2.6
50 percent or more	3.8	1.2
Percent of students eligible for free or reduced-price lunch		
Less than 11 percent	4.0	2.2
11 to 30 percent	4.1	2.1
31 to 70 percent	2.7	1.9
71 percent or more	3.8	2.3

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995; "Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 51, NCES 95-731.

Table 6a.--Standard errors of the percent of public schools having access to the Internet by the number of instructional rooms with Internet access, by school characteristics: 1995

School characteristic	Number of instructional rooms with Internet access				
	0 rooms	1 room	2-3 rooms	4 rooms	5 or more rooms
All public schools	1.1	2.6	1.8	1.2	2.2
Instructional level					
Elementary	1.6	3.5	2.5	1.7	2.9
Secondary	1.9	3.5	3.1	1.2	2.5
Size of enrollment					
Less than 300	3.6	5.3	5.3	2.1	5.3
300 to 999	1.4	3.0	2.2	1.4	2.4
1,000 or more	2.6	4.6	4.2	1.6	4.1
Metropolitan status					
City	3.2	5.6	4.7	3.0	5.5
Urban fringe	2.3	4.6	4.1	0.9	3.4
Town	2.7	5.2	4.2	2.0	4.7
Rural	2.7	4.7	3.6	2.7	3.3
Geographic region					
Northeast	1.8	5.8	5.3	0.6	3.8
Southeast	1.5	5.3	3.9	2.9	3.5
Central	2.9	4.8	4.0	1.4	3.7
West	2.6	5.1	3.5	2.8	3.8
Percent minority enrollment					
Less than 6 percent	3.0	4.7	3.6	1.4	3.5
6 to 20 percent	1.9	4.7	3.6	2.4	4.5
21 to 49 percent	1.4	6.4	4.3	3.0	4.3
50 percent or more	3.2	5.2	5.3	0.8	3.8
Percent of students eligible for free or reduced-price lunch					
Less than 11 percent	2.0	6.0	4.2	1.7	5.0
11 to 30 percent	1.6	4.0	3.2	1.6	3.9
31 to 70 percent	2.5	4.3	3.3	2.2	3.3
71 percent or more	4.6	7.5	6.0	0.6	4.5

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

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Table 7a.--Standard errors of the percent of public schools having access to the Internet by the number and mean number of computers with Internet access, by school characteristics: 1995

School characteristic	Number of computers with Internet access				Mean number of computers with Internet access
	1 computer	2-5 computers	6-9 computers	10 or more computers	
All public schools	2.3	2.1	1.2	2.1	1.0
Instructional level					
Elementary	3.2	2.8	1.5	2.8	1.2
Secondary	2.9	3.2	2.3	2.8	2.2
Size of enrollment					
Less than 300	6.7	6.6	3.1	4.4	1.6
300 to 999	3.1	3.0	1.5	2.7	1.4
1,000 or more	4.0	4.8	1.7	4.1	2.2
Metropolitan status					
City	4.5	5.5	2.7	4.3	1.7
Urban fringe	4.4	4.6	2.4	4.0	1.9
Town	5.2	4.9	2.3	4.7	2.8
Rural	5.1	4.9	2.2	3.5	1.9
Geographic region					
Northeast	5.3	4.9	2.4	3.8	2.6
Southeast	5.5	5.8	2.0	3.8	2.5
Central	5.1	4.1	2.2	3.3	1.7
West	4.2	4.7	2.4	4.5	1.8
Percent minority enrollment					
Less than 6 percent	4.9	4.0	2.7	3.4	1.9
6 to 20 percent	4.7	4.9	2.1	4.5	1.9
21 to 49 percent	5.2	5.8	3.7	5.8	2.7
50 percent or more	6.3	6.3	1.3	3.6	1.2
Percent of students eligible for free or reduced-price lunch					
Less than 11 percent	4.8	3.9	2.6	4.5	2.1
11 to 30 percent	5.0	3.4	1.9	3.9	2.1
31 to 70 percent	4.3	4.4	1.7	3.1	1.8
71 percent or more	7.7	8.5	2.9	5.5	1.6

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Table 8a --Standard errors of the percent of public schools having access to the Internet, by various types of Internet capabilities and for whom in the school community the capability is available: 1995

Internet capabilities	Available	Members of school community with access to capability		
		Administrative staff	Teachers	Students
E-mail	1.3	1.4	1.7	2.6
News groups	1.9	2.1	1.7	3.1
Resource location services (e.g., Gopher, Archie, Veronica, etc.)	2.2	2.4	1.5	3.0
World Wide Web Access (e.g., Browsers, such as Netscape, MOSAIC)	1.8	2.2	1.6	2.7

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Table 9a.--Standard errors of the percent of public schools having access to the Internet, by the extent of wide area network use by members of the school community and by school characteristics: 1995

School characteristic	Members of the school community								
	Administrative staff			Teachers			Students		
	Not at all	Small extent	Moderate or large extent	Not at all	Small extent	Moderate or large extent	Not at all	Small extent	Moderate or large extent
All public schools	2.0	2.4	1.9	1.6	2.3	2.2	2.6	2.6	2.2
Instructional level									
Elementary	2.9	3.6	2.5	2.4	3.3	2.7	3.5	3.7	2.6
Secondary	2.6	3.1	2.5	2.0	3.0	3.1	3.2	3.6	2.9
Size of enrollment									
Less than 300	4.8	5.9	4.7	4.2	5.0	6.0	5.2	5.0	4.7
300 to 999	2.8	3.3	2.4	2.1	3.0	2.6	3.3	3.3	2.2
1,000 or more	4.1	4.8	3.1	2.7	4.1	4.2	4.7	4.8	4.2
Metropolitan status									
City	5.9	6.1	4.3	3.9	5.8	4.4	5.9	5.4	3.9
Urban fringe	4.0	4.4	3.3	3.3	4.5	4.0	4.4	5.0	3.9
Town	4.9	5.1	3.8	3.3	4.8	4.5	4.8	5.3	4.2
Rural	3.6	4.9	3.9	3.4	5.0	4.9	4.4	4.8	3.6
Geographic region									
Northeast	5.0	5.7	3.8	3.5	5.5	4.6	5.6	5.7	4.7
Southeast	5.6	5.3	2.9	4.4	5.3	4.5	6.5	6.2	4.2
Central	3.9	4.6	3.6	3.5	4.3	3.8	4.7	4.7	3.4
West	3.1	4.3	3.7	2.4	4.9	4.5	4.3	4.2	3.7
Percent minority enrollment									
Less than 6 percent	3.8	4.0	3.7	4.0	4.3	3.7	4.6	4.7	4.0
6 to 20 percent	4.2	5.4	4.3	2.2	5.3	5.2	4.3	5.3	4.6
21 to 49 percent	5.1	5.2	3.8	1.8	4.5	4.4	5.6	6.0	4.2
50 percent or more	5.8	6.6	4.0	3.9	6.3	6.2	6.1	6.4	4.1
Percent of students eligible for free or reduced-price lunch									
Less than 11 percent	3.8	2.0	3.7	3.1	4.7	4.9	4.7	5.2	5.0
11 to 30 percent	3.6	5.2	3.5	2.6	4.6	4.0	4.1	4.7	4.0
31 to 70 percent	3.6	4.1	2.9	3.2	4.5	4.4	4.5	3.9	3.3
71 percent or more	7.8	4.3	5.7	4.2	6.2	6.6	7.1	7.3	5.3

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Table 10a.--Standard errors of the percent of public schools having access to the Internet, by type of wide area network connection and by school characteristics: 1995

School characteristic	Type of network connection				
	Modem	SLIP/PPP	56Kb	T1	ISDN
All public schools	1.6	2.3	1.4	1.4	0.9
Instructional level					
Elementary	2.5	3.2	1.9	1.8	1.3
Secondary	2.6	2.8	2.5	1.6	1.1
Size of enrollment					
Less than 300	4.4	4.5	3.4	0.8	2.2
300 to 999	2.1	2.6	1.9	1.7	0.9
1,000 or more	4.9	4.4	2.7	3.4	1.3
Metropolitan status					
City	4.4	4.7	2.9	4.0	2.3
Urban fringe	3.5	4.2	2.6	2.2	1.2
Town	3.5	4.1	3.3	2.3	--
Rural	3.9	4.1	2.7	1.9	2.6
Geographic region					
Northeast	3.8	4.2	3.4	2.2	1.6
Southeast	4.7	5.3	2.6	3.4	2.7
Central	3.2	4.4	2.1	2.1	0.6
West	3.4	2.9	3.3	1.9	1.7
Percent of minority enrollment					
Less than 6 percent	3.6	4.0	3.0	1.6	2.2
6 to 20 percent	3.9	3.1	3.4	2.9	0.7
21 to 49 percent	2.8	4.9	3.7	3.2	2.3
50 percent or more	4.0	4.1	2.9	2.9	2.2
Percent of students eligible for free or reduced-price lunch					
Less than 11 percent	4.0	4.6	4.1	2.2	(--)
11 to 30 percent	3.8	3.8	2.3	2.5	0.7
31 to 70 percent	2.2	3.3	2.5	1.7	1.4
71 percent or more	5.5	6.2	4.0	5.5	4.9

(--) Estimate of standard error is not derived because it is based on a statistic estimated at less than 0.5 percent or at 100 percent.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Table 11a.--Standard errors of the percent of public schools having access to the Internet, by type of network administrator and by school characteristics: 1995

School characteristic	Type of network administrator			
	Full-time network administrator	Part-time network administrator	No single individual	District staff
All public schools	1.5	2.5	2.1	2.0
Instructional level				
Elementary	2.2	3.4	2.9	2.7
Secondary	2.2	3.3	2.5	2.6
Size of enrollment				
Less than 300	3.6	5.5	4.3	4.6
300 to 999	1.9	3.2	2.7	2.6
1,000 or more	3.3	4.6	3.6	3.9
Metropolitan status				
City	2.8	4.7	4.3	4.3
Urban fringe	2.4	4.8	4.3	4.5
Town	4.7	5.5	3.2	5.0
Rural	2.2	5.0	3.6	4.0
Geographic region				
Northeast	3.9	5.8	4.6	4.0
Southeast	3.5	5.2	5.3	4.9
Central	2.6	4.0	3.7	3.9
West	2.4	5.3	3.5	3.7
Percent of minority enrollment				
Less than 6 percent	3.4	4.3	3.7	3.4
6 to 20 percent	3.1	4.7	4.5	4.5
21 to 49 percent	2.7	5.0	4.1	4.0
50 percent or more	2.4	7.2	5.0	5.8
Percent of students eligible for free or reduced-price lunch				
Less than 11 percent	3.3	5.5	4.9	4.8
11 to 30 percent	3.2	4.5	4.3	3.2
31 to 70 percent	2.7	4.4	3.5	3.7
71 percent or more	2.7	9.1	7.4	7.6

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Table 12a.--Standard errors of the percent of public schools reporting the extent of the formal role that various groups have in developing the school's advanced telecommunications activities: 1995

Various groups	Small or no extent	Moderate extent	Large extent
Students	1.1	1.2	0.4
Teachers/staff	1.4	1.5	1.9
Parents	2.0	1.9	0.9
School district	1.1	1.4	1.7
State education agency	1.7	1.3	1.3
Regional associations	1.5	1.3	0.8
Business leaders	1.3	1.2	0.7
Institutions of higher education	1.2	1.1	0.7
Other community organizations	1.4	1.2	0.7

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Table 13a --Standard errors of the percent of public schools that do not currently have access to the Internet and their plans to obtain access to the Internet, by school characteristics: 1995

School characteristics	No current Internet access	Planning Internet access in future	Type of access planned			No plans for future Internet access
			Direct	Other WAN	Both	
All public schools	1.8	2.4	2.9	2.0	1.5	2.4
Instructional level						
Elementary	2.4	2.9	3.3	2.4	1.7	2.9
Secondary	2.7	3.3	4.2	3.2	3.4	3.3
Size of enrollment						
Less than 300	3.9	5.1	5.6	3.8	2.8	5.1
300 to 999	2.2	3.1	3.9	3.1	2.1	3.1
1,000 or more	4.1	5.3	7.5	5.4	3.5	5.3
Metropolitan status						
City	4.3	4.8	6.0	3.9	4.3	4.8
Urban fringe	3.8	6.1	6.2	5.7	3.6	6.1
Town	3.7	5.1	5.1	4.5	2.4	5.1
Rural	3.8	4.5	5.6	3.8	2.7	4.5
Geographic region						
Northeast	5.3	7.0	6.3	4.9	4.1	7.0
Southeast	3.3	4.8	5.5	4.5	3.2	4.8
Central	3.3	5.0	5.4	3.9	2.7	5.0
West	3.4	4.1	5.4	4.2	3.2	4.1
Percent minority enrollment						
Less than 6 percent	3.3	5.2	5.9	3.9	3.0	5.2
6 to 20 percent	4.4	5.2	6.5	4.7	2.2	5.2
21 to 49 percent	4.0	5.7	6.0	6.8	5.3	5.7
50 percent or more	3.8	4.4	4.7	4.3	2.9	4.4
Percent of students eligible for free or reduced-price lunches						
Less than 11 percent	3.5	8.6	8.4	4.5	3.5	8.6
11 to 30 percent	3.6	5.1	6.1	4.6	3.7	5.1
31 to 70 percent	2.9	4.1	4.4	3.6	2.7	4.0
71 percent or more	4.3	4.3	4.7	4.5	2.8	4.3

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Table 14a.--Standard errors of the percent of all public schools indicating the extent to which various factors are barriers to either the acquisition or the use of advanced telecommunications: 1995

Barrier	Minor or no barrier	Moderate barrier	Major barrier
Lack of or poor equipment	1.9	1.9	1.8
Inadequate hardware upkeep and repair	1.7	1.5	1.5
Too few telecommunication access points in building	1.7	1.6	1.7
Problems with telecommunications service provider	1.7	1.3	1.1
Lack of instructional software	1.9	1.7	1.4
Software too complicated to use	1.6	1.5	1.0
Lack of time in school schedule	2.2	1.7	1.8
Telecommunications links not easily accessible	1.8	1.5	1.5
Telecommunications equipment not easily accessible	2.0	1.6	1.6
Lack of technical support or advice	1.9	1.5	1.9
Lack of administrative support or initiative	1.6	1.5	1.2
Lack of or inadequately trained staff	1.9	1.5	1.7
Lack of teacher interest	1.6	1.4	0.7
Lack of teacher awareness regarding ways to integrate telecommunications into curriculum	2.0	1.7	1.7
Lack of student interest	0.9	0.7	0.5
Lack of parent or community interest	1.5	1.4	0.7
Not enough help for supervising student computer use	2.4	1.8	1.7
Concern about student access to inappropriate materials	1.9	1.4	1.4
Funds not specifically allocated for telecommunications	1.7	1.4	1.7
Variability of telecommunications rates from service providers	1.8	1.6	1.3
Use of advanced telecommunications does not fit with the educational policy of this school	1.0	0.9	0.4

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

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Table 15a.--Standard errors of the percent of public schools currently having access to the Internet by the extent to which various factors are barriers to upgrading or maximizing the use of their advanced telecommunications capabilities: 1995

Barrier	Minor or no barrier	Moderate barrier	Major barrier
Lack of or poor equipment	3.0	2.6	2.7
Inadequate hardware upkeep and repair	2.4	2.1	1.8
Too few telecommunication access points in building	2.4	2.0	2.8
Problems with telecommunications service provider	1.9	1.6	1.3
Lack of instructional software	2.4	2.2	1.4
Software too complicated to use	1.9	1.9	1.1
Lack of time in school schedule	3.3	2.2	2.7
Telecommunications links not easily accessible	2.8	2.0	2.4
Telecommunications equipment not easily accessible	2.8	2.1	2.5
Lack of technical support or advice	2.7	2.1	2.0
Lack of administrative support or initiative	2.1	2.0	1.4
Lack of or inadequately trained staff	2.9	2.5	2.5
Lack of teacher interest	1.9	1.6	1.1
Lack of teacher awareness regarding ways to integrate telecommunications into curriculum	2.6	2.5	2.5
Lack of student interest	1.2	1.0	0.6
Lack of parent or community interest	2.1	1.8	0.9
Not enough help for supervising student computer use	3.0	2.8	1.8
Concern about student access to inappropriate materials	2.6	2.2	1.7
Funds not specifically allocated for telecommunications	2.5	2.1	2.4
Variability of telecommunications rates from service providers	2.2	2.0	1.7
Use of advanced telecommunications does not fit with the educational policy of this school	1.3	1.2	(--)

(--) Estimate of standard error is not derived because it is based on a statistic estimated at less than 0.5 percent or at 100 percent.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Table 16a.--Standard errors of the percent of public schools that do not currently have access to the Internet, by the extent to which various factors are barriers to their acquisition of advanced telecommunications capabilities: 1995

Barrier	Minor or no barrier	Moderate barrier	Major barrier
Lack of or poor equipment	2.6	2.7	2.6
Inadequate hardware upkeep and repair	2.5	2.1	2.4
Too few telecommunication access points in building	2.5	2.4	2.5
Problems with telecommunications service provider	2.6	1.9	2.0
Lack of instructional software	2.4	2.1	2.4
Software too complicated to use	2.3	2.0	1.7
Lack of time in school schedule	2.5	2.2	2.4
Telecommunications links not easily accessible	2.2	2.2	2.3
Telecommunications equipment not easily accessible	2.2	2.3	2.5
Lack of technical support or advice	2.5	2.5	2.8
Lack of administrative support or initiative	2.5	2.1	1.8
Lack of or inadequately trained staff	2.4	2.2	2.5
Lack of teacher interest	2.4	2.3	1.1
Lack of teacher awareness regarding ways to integrate telecommunications into curriculum	2.6	2.3	2.4
Lack of student interest	1.1	0.9	0.7
Lack of parent or community interest	2.0	1.9	1.1
Not enough help for supervising student computer use	3.1	2.2	2.6
Concern about student access to inappropriate materials	2.8	2.1	2.0
Funds not specifically allocated for telecommunications	2.2	1.7	2.4
Variability of telecommunications rates from service providers	2.7	2.3	1.9
Use of advanced telecommunications does not fit with the educational policy of this school	1.6	1.5	0.9

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Survey on Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 57, 1995.

Appendix B

Reference Tables

Table 10b1.--Percent of public schools having access to any wide area network, by type of connection and by school characteristics: 1994

School characteristics	Type of connection				
	Modem	T1	56Kb	SLIP/PPP	Other
All public schools	97	3	4	3	4
Instructional level*					
Elementary	97	2	3	2	3
Secondary	97	3	5	5	4
Size of enrollment					
Less than 300	97	2	2	1	2
300 to 999	97	3	4	3	4
1,000 or more	96	3	5	7	4
Metropolitan status					
City	97	5	3	3	4
Urban fringe	96	3	4	2	5
Town	98	1	4	5	3
Rural	97	1	4	3	3
Geographic region					
Northeast	98	2	4	2	2
Southeast	98	1	1	1	4
Central	96	1	4	5	4
West	97	6	5	3	5

*Data for combined schools are not reported as a separate instructional level because there were very few in the sample. Data for combined schools are included in the totals and in analyses by other school characteristics.

NOTE: Percents in this table are based upon the number of schools having access to Internet or any other wide area network connection (e.g., CompuServe, America Online, Prodigy)--49 percent of public schools. Percents do not sum to 100 because some schools reported more than one type of connection.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 51, NCES 95-731

Table 10b2 --Standard errors of the percent of public schools having access to any wide area network, by type of connection and by school characteristics: 1994

School characteristics	Type of connection				
	Modem	T1	56Kb	SLIP/PPP	Other
All public schools	0.7	0.8	0.7	0.6	0.8
Instructional level					
Elementary	0.9	1.0	1.0	0.9	1.1
Secondary	1.0	0.8	1.1	1.0	1.1
Size of enrollment					
Less than 300	1.6	1.2	1.4	0.6	1.0
300 to 999	0.9	1.0	1.0	0.8	1.2
1,000 or more	1.3	1.2	1.5	1.7	1.4
Metropolitan status					
City	1.5	1.8	1.3	1.3	1.6
Urban fringe	1.5	1.4	1.5	0.9	1.6
Town	1.2	0.6	1.3	1.7	1.5
Rural	1.3	0.9	1.6	1.3	1.1
Geographic region					
Northeast	1.2	0.8	1.6	1.4	1.3
Southeast	1.7	0.5	0.9	0.8	2.5
Central	1.4	0.6	1.3	1.4	1.3
West	1.3	1.9	1.4	1.0	1.3

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 51, NCES 95-731.

Table 12b1.--Percent of public schools having access to any wide area network by the extent of the formal role in developing the school's telecommunications program, by various groups: 1994

Various groups	Small or no extent	Moderate extent	Large extent
Students	91	8	2
Teachers/staff	33	35	33
Parents	79	17	4
District/regional administrators	26	26	48
Business leaders	84	12	4
Institutions of higher education	81	14	5
Community organizations	88	8	4
State education agency	66	21	13

NOTE: Percents in this table are based upon the number of schools having access to Internet or any other wide area network connection (e.g., CompuServe, America Online, Prodigy)--49 percent of public schools. Percents may not sum to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 51, NCES 95-731.

Table 12b2.--Standard errors of the percent of public schools having access to any wide area network by the extent of the formal role in developing the school's telecommunications program, by various groups: 1994

Various groups	Small or no extent	Moderate extent	Large extent
Students	1.3	1.2	0.5
Teachers/staff	1.9	1.8	2.0
Parents	2.1	1.9	0.7
District/Regional administrators	1.8	1.7	1.8
Business leaders	1.8	1.5	1.0
Institutions of higher education	1.5	1.4	0.9
Community organizations	1.3	1.0	0.7
State education agency	2.3	1.9	1.4

SOURCE: U.S. Department of Education, National Center for Education Statistics, Fast Response Survey System, "Advanced Telecommunications in U.S. Public Schools, K-12," FRSS 51, NCES 95-731.

Appendix C: Glossary of Terms

Terms Defined on the Survey Form

Advanced telecommunications - refers to modes of communication used to transmit information from one place to another including broadcast and interactive television, networked computers, etc.

Broadcast television - refers to network television such as NBC, CBS, etc.

Cable television - refers to subscription television such as CNN, Learning Channel, Discovery, etc.

Closed-circuit television - refers to the transmission of television on noncommercial lines (e.g., inhouse broadcast).

E-mail (Electronic mail) - refers to text messages transmitted across networks and usually accessible only by the addressee.

56Kb - refers to a digital transmission speed of 56 Kilo (thousand) bits per second.

Instructional rooms - refers to rooms in the school building used for any instructional purposes (includes classrooms, labs, media centers, art rooms, rooms used for vocational or special education, etc.).

Internet - refers to a network of networks all running the TCP/IP protocols, sharing the same underlying network address space as well as the same domain name space, and interconnected into a network of information.

ISDN (Integrated Services Digital Network) - refers to data communication that integrates voice and data.

Local area network (LAN) - refers to the linkage of computers and/or peripherals (e.g., printer) confined to a limited area that may consist of a room, building, or campus that allows users to communicate and share information.

Modem - a device which connects between a computer and a phone line to translate between the digital signal of the computer and the analog signal required for telephone transmission.

News groups - electronic conferences/discussion groups similar to maillists. News group messages, called articles, are not mailed to a subscriber's e-mailbox but are distributed to a subscribing system's news server. The single copy is then accessed by all users on their network-connected machines. Each news group focuses on a subject area.

One-way video with two-way audio or two-way computer link - refers to the ability to transmit or receive picture in one direction with the capability to communicate in two directions (interactively) via computer or some audio method.

PPP (Point to Point Protocol) - refers to a protocol that allows a computer to use TCP/IP (Internet) protocols (and become a full-fledged Internet member) with a standard telephone line and a high speed modem. See SLIP.

SLIP (Serial Line Internet Protocol) - refers to a protocol that allows a computer to use TCP/IP (Internet) protocol using serial lines such as dial-up telephone lines. See PPP.

T1 rate - refers to a digital transmission speed of 1.544 Mega (million) bits per second.

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Two-way video and audio - refers to the ability to transmit and receive picture and sound simultaneously in real time.

Wide area network (WAN) - refers to a data communications linkage designed to connect computers over distances greater than the distance transmitted by local area networks (e.g., building to building, city to city, across the country, or internationally), that allows users to communicate and share information.

World Wide Web (WWW) - refers to a system that allows access to information sites all over the world using a standard, common interface called hypertext to organize and search information. It simplifies the process of finding a site, connecting, locating the appropriate documents and downloading the information through the use of a browser (e.g., Netscape, MOSAIC).

Terms Used in the Survey Report

Archie - a research tool on the Internet for finding network host computers that have programs or data files which can be transferred to your machine.

Browsers - software application that allows the user to access a server computer on the Internet (e.g., Netscape).

Gopher - software which permits searching files on the Internet on remote hosts using layered menus. Text from these files can be read online or the files can be transferred to your computer.

MOSAIC - World Wide Web browser or client capable of accessing data via protocols such as Gopher and World Wide Web directly that will receive and display a wide variety of data types.

Netscape - a browser software application that allows the user to access a server computer on the Internet.

VERONICA (Very Easy Rodent-Oriented Net-wide Index to Computerized Archives) - an Internet search tool that does keyword searches of indexes of Gopher documents at Internet sites.

Sample Universe and Classification Variables

Common Core of Data (CCD) Public School Universe - a database containing one record for each public elementary and secondary school in the 50 states, District of Columbia, and 5 outlying areas, as reported to the National Center for Education Statistics by the State Education Agencies each year. Records on this file contain the state and federal identification numbers, name, address, and telephone number of the school, county name and codes for the state, school type, enrollment size, and other selected characteristics of the school.

Instructional level

Elementary - schools beginning with grade 6 or lower, but having no grade higher than 8.

Secondary - schools with no grade lower than 7.

Combined - all other regular schools.

Metropolitan status

City - a central city of a Standard Metropolitan Statistical Area (SMSA).

Urban fringe - a place within an SMSA of a large or mid-size central city and defined as urban by the U.S. Bureau of the Census.

Town - a place not within an SMSA, but with a population greater than or equal to 2,500, and defined as urban by the U.S. Bureau of the Census.

Rural - a place with a population less than 2,500 and defined as rural by the U.S. Bureau of the Census.

Geographic region

Northeast - Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

Southeast - Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia.

Central - Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

West - Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oklahoma, Oregon, Texas, Utah, Washington, and Wyoming.

Appendix D: Survey Methodology and Data Reliability

Sample Selection

The sampling frame for the FRSS *Survey on Advanced Telecommunications in U.S. Public Schools, K-12* was the 1992-93 list of public schools compiled by the National Center for Education Statistics (NCES). This complete file contains about 85,000 school listings and is part of the NCES Common Core of Data (CCD) School Universe. This frame includes 58,273 regular elementary schools, 20,240 secondary or combined schools in the 50 states and the District of Columbia. All regular elementary, middle, and secondary schools in the 50 states and the District of Columbia were included in the sampling frame. Special education, vocational, and alternative/other ungraded schools, schools in the outlying territories, and schools with the highest grade level below 1st grade were excluded from the frame prior to sampling. With these exclusions, the final sampling frame consisted of approximately 78,513 eligible schools.

The sample was stratified by instructional level (elementary, secondary, combined) and by geographic region (northeast, southeast, central, and west). Within each of the major strata, schools were sorted by metropolitan status (city, urban fringe, town, rural), size of enrollment (less than 300, 300 to 499, 500 to 999, 1,000 to 1,499, 1,500 or more), and percent minority enrollment (less than 5 percent, 5 to 19.9 percent, 20 to 49.9 percent, 50 percent or more). The allocation of the sample to the major strata was made in a manner that was expected to be reasonably efficient for national estimates, as well as for estimates for major subclasses.

Response Rates

In October 1995, survey instruments (see appendix G) were mailed to 1,000 public school principals. Principals were asked to forward the questionnaire to the computer or technology coordinator or to whoever was most knowledgeable about the availability and use of advanced telecommunications at the school. The accompanying instructions requested that the school complete the survey form and return it by mail. Telephone followup was conducted with schools that did not complete the survey by mail. Six schools were found to be out of the scope of the study (because of closings), leaving 994 eligible schools in the sample. Data collection was completed in December. The survey response rate was 92.2 percent (917 schools divided by the 994 eligible schools in the sample). The weighted response rate was 92.1 percent.

Comparative statements for 1994 and 1995 represent comparisons with the results of a national survey of 1,339 public schools participating in the 1994 *Survey of Advanced Telecommunications in U.S. Public Schools, K-12*. In October 1994, survey instruments were mailed to 1,502 public school principals to be passed on to computer or technology coordinators. Unlike the current survey, however, all data were collected by telephone. Interviews were conducted from mid-October through late November 1994, achieving a 92.6 percent response rate. The weighted response rate for the 1994 survey was 93.5 percent.

Sampling and Nonsampling Errors

The responses were weighted to produce national estimates. The sample weights were the inverse probability of selection adjusted for nonresponse. The findings of this report are estimates based on the sample selected and, consequently, are subject to sampling variability.

The survey estimates are also subject to nonsampling errors that can arise because of nonobservation (nonresponse or noncoverage) errors, errors of reporting, and errors made in collection of the data. These errors may result in biased data. Nonsampling errors may include such problems as the differences in the respondents' interpretation of the meaning of the questions; memory effects; misrecording of responses; incorrect editing, coding, and data entry; differences related to the particular time the survey was conducted; or errors in data preparation. While general sampling theory can be used in part to determine how to estimate the sampling variability of a statistic, nonsampling errors are not easy to measure and, for measurement purposes, usually require that an experiment be conducted as part of the data collection procedures or that data external to the study be used.

To minimize the potential for nonsampling errors, the questionnaire was pretested with school principals and computer/technology coordinators like those in the survey population. During the design of the survey and the survey pretest, an effort was made to check for consistency of interpretation of questions and terms and to eliminate ambiguous items or instructions. The questionnaire and instructions were extensively reviewed by the National Center for Education Statistics. Manual and machine editing of the questionnaire responses were conducted to check the data for accuracy and consistency. Cases with missing or inconsistent items were recontacted by telephone. Final item nonresponse ranged from 0.0 to 3.5 percent (for nearly all items, nonresponse rates were less than 1 percent). No items were imputed. All data were keyed with 100 percent verification.

Variances

The standard error is a measure of the variability of estimates due to sampling. It indicates the variability of a sample estimate that would be obtained from all possible samples of a given design and size. Standard errors are used as a measure of the precision expected from a particular sample. If all possible samples were surveyed under similar conditions, intervals of 1.96 standard errors below to 1.96 standard errors above a particular statistic would include the true value 95 percent of the time. For example, the estimated percentage of schools reporting that they have access to the Internet is 50 percent, and the estimated standard error is 1.8 percentage points. The 95 percent confidence interval for the statistic extends from [50 - (1.8 times 1.96)] to [50 + (1.8 times 1.96)], or from 46.5 to 53.5 percent.

Estimates of standard errors were computed using a technique known as jackknife replication, which accounts for the complexities of the sample design. As with any replication method, jackknife replication involves constructing a number of subsamples (replicates) from the full sample and computing the statistic of interest for each replicate. The mean square error of the replicate estimates around the full sample estimate provides an estimate of the variance of the statistic (see Wolter 1985, Chapter 4; see Appendix F). To construct the replication, 40 stratified subsamples of the full sample were created and then dropped one at a time to define 40 jackknife replicates. A proprietary computer program (WESVAR), available from Westat, Inc., was used to calculate the estimates of standard errors. The software runs under IBM/OS and VAX/VMS systems.

Appendix E: Background Information

The survey was conducted under contract by Westat, Inc., using the NCES Fast Response Survey System (FRSS). Westat's Project Director was Elizabeth Farris, and the Associate Project Director and Survey Manager was Sheila Heaviside. Judi Carpenter was the NCES Project Officer. The survey was requested by Linda Roberts of the U.S. Department of Education. Gerald Malitz at NCES coordinated the survey request and collaborated with Westat on the data analyses and report writing.

This report was reviewed by the following individuals:

Outside NCES

- Oona Cheung, Council of Chief State School Officers

Inside NCES

- Michael Cohen, Statistical Standards and Methodology Division
- William Freund, Postsecondary Education Statistics Division
- Kerry Gruber, Elementary/Secondary Education Statistics Division
- Frank Johnson, Elementary/Secondary Education Statistics Division
- Marilyn McMillen, Elementary/Secondary Education Statistics Division

For more information about the Fast Response Survey System or the *Survey of Advanced Telecommunications in U.S. Public Schools, K-12*, contact Judi Carpenter, Elementary/Secondary Education Statistics Division, Office of Educational Research and Improvement, National Center for Education Statistics, 555 New Jersey Avenue, NW, Washington, DC 20208-5651, telephone (202) 219-1333.

Appendix F: References

The WESVAR Procedures. 1989. Rockville, MD: Westat, Inc.

Wolter, K. 1985. *Introduction to Variance Estimation*. Springer-Verlag.

Advanced Telecommunications in U.S. Public Schools, K-12, FRSS 51, NCES 95-731.

Appendix G: Survey Instrument

U.S. DEPARTMENT OF EDUCATION
NATIONAL CENTER FOR EDUCATION STATISTICS
WASHINGTON, D.C. 20208-5651

ADVANCED TELECOMMUNICATIONS IN U.S. PUBLIC SCHOOLS, K-12

FAST RESPONSE SURVEY SYSTEM

FORM APPROVED
O.M.B. NO : 00706
EXPIRATION DATE: 12/31/95

This survey is authorized by law (20 U.S.C. 1221e-1). While you are not required to respond, your cooperation is needed to make the results of this survey comprehensive, accurate, and timely.

DEFINITIONS

Advanced telecommunications - refers to modes of communication used to transmit information from one place to another including broadcast and interactive television, networked computers, etc.

Broadcast television - refers to network television such as NBC, CBS, etc.

Cable television - refers to subscription television such as CNN, Learning Channel, Discovery, etc.

Closed-circuit television - refers to the transmission of television on noncommercial lines (e.g., inhouse broadcast).

E-mail (Electronic mail) - refers to text messages transmitted across networks and usually accessible only by the addressee.

56Kb - refers to a digital transmission speed of 56 Kilo (thousand) bits per second.

Instructional rooms - refers to rooms in the school building used for any instructional purposes (includes classrooms, labs, media centers, art rooms, rooms used for vocational or special education, etc.).

Internet - refers to a network of networks all running the TCP/IP protocols, sharing the same underlying network address space as well as the same domain name space, and interconnected into a network of information.

ISDN (Integrated Services Digital Network) - refers to data communication that integrates voice and data.

Local area network - refers to the linkage of computers and/or peripherals (e.g., printer) confined to a limited area that may consist of a room, building, or campus that allows users to communicate and share information.

Modem - a device which connects between a computer and a phone line to translate between the digital signal of the computer and the analog signal required for telephone transmission.

Newsgroups - electronic conferences/discussion groups similar to mailists. Newsgroup messages, called articles, are not mailed to a subscriber's e-mailbox but are distributed to a subscribing system's news server. The single copy is then accessed by all users on their network-connected machines. Each newsgroup focuses on a subject area.

One-way video with two-way audio or two-way computer link - refers to the ability to transmit or receive picture in one direction with the capability to communicate in two directions (interactively) via computer or some audio method.

PPP (Point to Point Protocol) - refers to a protocol that allows a computer to use TCP/IP (Internet) protocols (and become a full-fledged Internet member) with a standard telephone line and a high speed modem. See SLIP.

SLIP (Serial Line Internet Protocol) - refers to a protocol that allows a computer to use TCP/IP (Internet) protocol using serial lines such as dial-up telephone lines. See PPP.

T1 rate - refers to a digital transmission speed of 1.544 Megg (million) bits per second.

Two-way video and audio - refers to the ability to transmit and receive pictures and sound simultaneously in real time.

Wide area network - refers to a data communications linkage designed to connect computers over distances greater than the distance transmitted by local area networks (e.g., building to building, city to city, across the country, or internationally), that allows users to communicate and share information.

World Wide Web (WWW) - refers to a system that allows access to information sites all over the world using a standard, common interface called hypertex to organize and search information. It simplifies the process of finding a site, connecting, locating the appropriate documents and downloading the information through the use of a browser (e.g., Netscape, MOSAIC).

AFFIX LABEL HERE

IF ABOVE INFORMATION IS INCORRECT, PLEASE MAKE CORRECTIONS DIRECTLY ON LABEL.

Name of person completing form: _____ Telephone: _____

Title/position: _____ Number of years at this school: _____

Best days and times to reach you (in case of questions): _____ E-mail: _____

PLEASE RETURN COMPLETED FORM TO:

WESTAT
1650 Research Boulevard
Rockville, Maryland 20850
Attention: 900181-Heaviside

IF YOU HAVE ANY QUESTIONS, CONTACT:

Sheila Heaviside
800-937-8281, ext. 8391
Fax: 301-294-3992
E-mail: HEAVISS1@westat.com

The time required to complete this information collection is estimated to average 30 minutes per response, including the time to review instructions, search existing data resources, gather and maintain the data needed, and complete and review the information collection. If you have any comments concerning the accuracy of the time estimate(s) or suggestions for improving this form, please write to: U.S. Department of Education, Washington, DC 20202-4651.

FRSS Form No. 57, 10/95

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PLEASE REFER TO DEFINITIONS ON COVER PAGE FOR WORDS IN ITALICS.

I. Telecommunications

1 What is the total number of instructional rooms in this school? Include all rooms used for any instructional purposes (including classrooms, computer and other labs, media centers, etc.) _____ Total instructional rooms

2 What is the total number of computers in this school? _____ Total computers

3 Please indicate whether or not each type of equipment or service is available at this school, and where in the school it is located. Then provide the number of instructional rooms (include classrooms, computer and other labs, media centers, etc.) in which the equipment/service is available. *(Circle yes or no or enter appropriate responses in each column for each item.)*

Equipment or service	1 Available at school	2 In administrative offices?	3 In teacher workrooms?	4 In classrooms?	5 In computer labs?	6 In Library/media centers?	7 Total number of *instructional rooms* with service (Columns 4-6)
a Computers connected to a *local area network*	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	_____
b Computer with modem	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	_____
c Computer with connection or access to a *wide area network*	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	_____
d *Broadcast television*	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	_____
e *Cable television*	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	_____
f *Closed-circuit television*	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	_____
g *One-way video with two-way audio or computer link*	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	_____
h *Two-way video and audio*	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	_____

If you answered no to question 3a, column 1, check here and skip to question 5a. ☐ *No local area network*

II. Local Area Networking Capabilities

4 Does your *local area network* connect any of the following for instructional and/or administrative purposes? *(Circle all that apply.)*

	Purpose		
	Administrative purposes	Instructional purposes	Neither
a Computers to a shared printer or other peripherals (e.g., CD-ROM reader) for	1	2	3
b Computers within the same room for	1	2	3
c Computers in different rooms in your school building or on your school campus for	1	2	3
d Computers in your school with a regional, national, or international network for	1	2	3

III. Wide Area Networking Capabilities

5a What type of access to the Internet does this school have? *(Circle one.)*

No access to the Internet	1	
Direct access to the Internet	2	*(Skip to question 6)*
Access to the Internet through another wide area network (e.g., America Online, Prodigy, CONNECT, etc.)	3	*(Skip to question 6)*
Both direct access to the Internet and access through another wide area network	4	*(Skip to question 6)*

5b. **Does this school have plans to obtain access to the Internet?** *(Circle one.)*

Yes, direct access to the Internet is planned	1	*(Skip to question 5c)*
Yes, access through another wide area network (e.g., America Online, Prodigy, CompuServe, etc.) is planned	2	*(Skip to question 5c)*
Yes, both direct access to the Internet and access through another wide area network is planned	3	*(Skip to question 5c)*
No	4	*(Skip to question 12)*

5c. If yes, by what year do you expect to obtain access to the Internet? 19_____ *(Skip to question 12)*

6. Which of the following Internet resources or capabilities does your school have and who in your school has access to each? *(Circle all that apply.)*

Resource/capability	Not available	Available for administrative staff	Available for teachers	Available for students
a. E-mail	1	2	3	4
b. News groups	1	2	3	4
c. Resource location services (e.g., Gopher, Archie, Veronica, etc.)	1	2	3	4
d. World Wide Web Access (e.g., Browsers such as Netscape, MOSAIC)	1	2	3	4
e. Other (*specify*)_____	1	2	3	4

7a. How many computers in this school have access to the Internet? _____ Computers

7b. How many rooms used for instructional purposes (include classrooms, labs and media centers, etc.) have a computer with access to the Internet? _____ Rooms

8. How does your school connect to *wide area networks* (e.g., Internet, America Online, Prodigy, CompuServe, etc.)? *(Circle all that apply.)*

Modem	1	T1	4
SLIP/PPP connection	2	ISDN	5
56Kb	3	Other (*specify*) _____)	6

9. Who has responsibility for administering the *wide area network* in your school? (*Circle one.*)

A full-time network administrator (staff member whose primary responsibility is network administration)	1
A staff member with part-time responsibility for administering the network	2
No single individual	3
Administered by the district	4

10. To what extent do administrative staff, teachers, and students use *wide area networks* (e.g., Internet, America Online, Prodigy, CompuServe, etc.) in your school? *(Circle one for each item.)*

	Use wide area networks			
	Not at all	**Small extent**	**Moderate extent**	**Large extent**
a. Administrative staff	1	2	3	4
b. Teachers	1	2	3	4
c. Students	1	2	3	4

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11 Which of the following possible restrictions involving student access to *wide area networks* (e.g., Internet, America Online, Prodigy, CompuServe, etc.), apply in your school? *(Circle all that apply.)*

a No students have access 1
b All students have access 2
c Network access is restricted to specific grades 3
d Network access is restricted to those students currently enrolled in or having completed a computer course 4
e Network access is restricted to students in specific programs (e.g., gifted and talented, honors, advanced placement, remedial, etc.) 5
f Other *(specify)*_____ 6

12 To what extent do each of the following groups have a formal role in developing your school's *advanced telecommunications* activities? *(Circle one for each item.)*

	Not at all	Small extent	Moderate extent	Large extent
a Students	1	2	3	4
b Teachers/Staff	1	2	3	4
c Parents	1	2	3	4
d School district	1	2	3	4
e State Education Agency	1	2	3	4
f Regional associations	1	2	3	4
g Business leaders	1	2	3	4
h Institutions of higher education	1	2	3	4
i Other community organizations (e.g., libraries)	1	2	3	4
j Other (*specify*) _____	1	2	3	4

IV. Barriers

13 Please indicate to what extent, if any, each of the following are barriers to your school's acquisition or usage of *advanced telecommunications* capabilities. If your school is currently using *advanced telecommunications*, please indicate to what extent the following are barriers to upgrading or maximizing telecommunications usage. *(Circle one for each item.)*

	Not a barrier	Minor barrier	Moderate barrier	Major barrier
a Lack of or poor equipment	1	2	3	4
b Inadequate hardware upkeep and repair	1	2	3	4
c Too few telecommunication access points in building	1	2	3	4
d Problems with telecommunications service provider	1	2	3	4
e Lack of instructional software	1	2	3	4
f Software too complicated to use	1	2	3	4
g Lack of time in school schedule	1	2	3	4
h Telecommunications links not easily accessible	1	2	3	4
i Telecommunications equipment not easily accessible	1	2	3	4
j Lack of technical support or advice	1	2	3	4
k Lack of administrative support or initiative	1	2	3	4
l Lack of or inadequately trained staff	1	2	3	4
m Lack of teacher interest	1	2	3	4
n Lack of teacher awareness regarding ways to integrate telecommunications into curriculum	1	2	3	4
o Lack of student interest	1	2	3	4
p Lack of parent or community interest	1	2	3	4
q Not enough help for supervising student computer use	1	2	3	4
r Concern about student access to inappropriate materials	1	2	3	4
s Funds not specifically allocated for telecommunications	1	2	3	4
t Variability of telecommunications rates from service providers	1	2	3	4
u Use of *advanced telecommunications* does not fit with the educational policy of this school	1	2	3	4

14 In what year was this school built? 19_____

15 When was the last major renovation? 19_____

16 Did the construction or renovation include wiring for telecommunication services? *(Circle one.)*

Yes ..... 1 No 2

17 What percentage of your students are eligible for the federally funded free or reduced-price lunch program? _____%

THANK YOU!

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